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U.S. Department of Labor Employment and Training Administration Apprenticeship Training, Employer and Labor Services Washington, D.C. 20210	Distribution: A-541 Hdqtrs A-544 All Field Tech A-547 SD+RD+SAC+; Lab.Com	Subject: Code: 200 New Apprenticeable Occupation Information Technology (IT) Project Manager
Symbols: DSNIP/FDK		Action: Immediate

PURPOSE: To transmit to the Office of Apprenticeship Training, Employer and Labor Services (OATELS), Bureau of Apprenticeship and Training (BAT) staff the recognition of a new apprenticeable occupation:

IT Project Manager
DOT Code: 169.167-900
O*NET/SOC Code: 11-3021.00
RAIS Code: 1048
Training Term: Competency-Based

BACKGROUND: ATR Marlene Budge submitted the IT Project Manager occupation on behalf CompTIA the Computing Technology Industry Association. The OATELS Administrator approved the IT Project Manager as a new apprenticeable occupation on February 25, 2003. The IT Project Manager is responsible for project–based work efforts. The IT Project Manager manages the start-up, execution and closure of each project; meets with customers to determine business needs, then measures and documents success in achieving the goals

The IT Project Manager training program is competency based. A suggested work process schedule and related instruction outline is attached for your information.

The IT Project Manager will be added to the list of occupations recognized as apprenticeable by OATELS when the list is reissued.

ACTION: OATELS staff should familiarize themselves with this new occupation.

If you have any additional questions please contact Marlene Budge at (312) 596-5501.

Attachment

Work Process Schedule

Information Technology (IT)
Project Manager
DOT Code: 169.167.900
O*Net Code: 11-3021.00
RAIS Code: 1048

Description: Responsible for project –based work efforts. Manages the start-up, execution and closure of each project. Meets with customers to determine business needs, then measures and documents success in achieving the goals. Defines an interrelated series of tasks that must be performed for the successful completion of a project. Utilizes a proven methodology to plan, direct, monitor, adjust and control project plans. Resolves issues of scope, resource availability, resource expertise, budget constraints and deadlines. Defines, monitors and revises project scopes; and continually modifies project plans; evaluates and mitigates project risks; manages client relationships; manages project budgets and revenues; manages project team; manages vendor relations, monitors and reports progress against, objectives; oversees communication and reporting on projects; oversees quality issues for projects; selects and gets approval to use identified resources. Works under general supervision. Typically reports to the senior management.

On-The-Job Training Outline: IT Project Manager

Project Strategy & Life Cycle **300 hrs**

Observation of process

Generate and refine a preliminary project concept definition
Determine the business need and feasibility of the project
Identify project sponsors who will help obtain resources
Create a written business case
Create a first cut project charter
Identify an appropriate project life cycle (phases, tracks of work & deliverables) and estimate phase transition dates
Summarize the project life cycle in a PowerPoint/Visio drawing
Perform Post-it note exercise
Create a release strategy
Obtain formal approval from the project sponsor
Confirm management authorization to begin planning
Capture issues in an issue log
Perform ~~a~~ Initiate/Concept phase exit quality gate review

Process Tools and Techniques

Business case template
Life Cycle Chart
Project Charter template
Post-it note workshop to identify project mission, life cycle phases, tracks of work and deliverables
Issue log
Quality gate review

DEFINED ROLES AND ORGANIZATION **300 hrs**

Observation of process

Given a project charter, recruit project team members
Create a project team organization using matrix (strong or weak) concepts
Develop and deliver a presentation describing roles/responsibilities of the
project manager, sponsor, skill center managers, project leaders, team
members and stakeholders
Identify project stakeholders
Identify project sponsor
Verify that sponsor understands his/her role in the process
Identify and document organizational and process issues
Close all issues for the phase regarding org structure, roles and process

Process Tools and Techniques

Project/Matrix organization chart template
Roles and responsibility assignment template
Issue log template

Stable Scope and Requirements **800 hrs**

Observation of process

Given an approved business case create a high level Statement of Work
(SOW) or project charter
Identify Product Scope document by using: 1) a simple requirements
document or 2) QFD breakdown listing performance requirements at
primary, secondary and tertiary levels as required
Document product specifications (i.e., objective measures of requirements)
as required per QFD approach
Map product requirements to stakeholder objectives and identify gaps
Identify issues and gaps related to functionality (i.e., requires that can be
delivered versus requirements requested)
Identify Project Scope by creating work breakdown structure (WBS.)
Drill down WBS to the activity level
Verify that WBS contains all project phases and tracks of work
Review project scope with appropriate stakeholders
Identify all open scope and requirements issues
Close all scope and requirements issues for the phase
Per QFD approach, develop a strategy to ensure that requirements are
mapped, checked and managed in each of the implementation phases prior
to phase exit

Process Tools and Techniques

Statement of Work (SOW) template
QFD requirements list (A.K.A. House of Quality) or simple requirements
document
Work Breakdown Structure (WBS) template
Issue Log
Requirements management tools

Change Control **100 hrs**

Observation of Process

Select the appropriate change order form/tool
Develop a presentation describing the change order process
Explain the change order process to all team members and stakeholders
Formalize requested changes of scope and requirements by using the
change order process

Process Tools and Techniques

Change order template

Planned Commitments **800 hrs**

Observation of Process

A) Schedule Development

Project WBS activities entered into appropriate scheduling tool
All activities assigned accountable "owners"
All activities estimated for most likely durations or for highly uncertain activities, durations are estimated using three point approach
Effort driven activities are estimated by hours/days and prioritized. Required
resources are estimated
Logic ties are assigned linking all activities creating a network to enable
calculation of total float
The project schedule is calculated through all phases and tracks of work
The project critical path is identified
Resources are assigned and the project is rescheduled based upon resource
constraints (See Resource Loading below)
Phase transition milestones are highlighted (See Quality Planning below)
Project contingency time is added as required (see Risk Management below)
The project schedule is reviewed against stakeholder requirements
The project schedule is reviewed against product requirements
The team feels ownership of the schedule
Schedule issues are closed during the planning phase (s)
Baseline dates are set
The project schedule is published and communicated to stakeholders
The change control/change order process is applied to the project schedule
following the planning phase (s)
Rolling wave planning (i.e. progressive detailing) is performed during the
execution phases as required

B) Risk Management

Anticipating Problems Workshop is delivered. A document listing prioritized
risks, owners and removal/mitigation strategies is produced

For high uncertainty activities, Monte Carlo techniques or three point
estimates are applied to determine required schedule contingency

C) Resource Loading (medium to larger scale projects)

Assign resources to WBS activities using the assumption of the "normal and
efficient use of resources"

Produce an exception report showing resource shortfalls

Resolve resource/staffing issues to ensure the project has adequate
headcount

Lock schedule, scope and resources so that a challenging but achievable
schedule is created

Review resource requirements with stakeholders and secure approval

Secure resource commitments to the project from functional skill
areas/contractors (see Budget below)

D) Quality Planning

A process of Quality Gates and phase reviews are scheduled at phase exit
dates

Sufficiency criteria for each phase are identified with appropriate metrics

E) Budget

Enter Project Cost Elements and budget into Portfolio Dashboard tool

Assign rates to Cost elements

Extend project costs over a time phased budget and create Budget at
Complete (BAC)

Review summary time phased budget with stakeholders

Create business case

Receive budget approval and authorization to begin work

All budget issues resolved

F) Set Baseline Metrics
Calculate Total float for each activity
Create S Curve of activity completions
Create quality gate sufficiency metrics (including requirements) for each
project phase
Create S Curve of Project Budget
Develop baseline reporting metrics using graphical tools are created for key
deliverables such as configurations, data records, testing, reports, forms
etc.

G) Communications and change management
A communications plan is created for medium to large scale projects
A change management plan is created for project leading to significant
organizational change

Process Tools and Techniques
Work Breakdown Structure
Requirements document and or QFD requirements worksheet
Activity duration estimate~~ing~~ using three point estimate approach
Activity effort estimate~~ing~~ using three point estimate approach
Project Scheduling software
Monte Carlo Techniques/Three point estimates
Anticipating Problems Workshop
Quality Gates, sufficiency criteria and metrics
Budget/EAC
Total Float
Critical path
S Curve of activity completions
Budget S curve

Performance Measurement **800 hrs**

Observation of Process

Project team meetings occur regularly. Performance metrics are presented at those meetings and performance shortfalls are flagged

Project metrics are used in project reviews with the project sponsor and senior stakeholders

Tracking of the schedule adherence is performed routinely. Variances are flagged

Baseline and actual star/finish dates and percent complete are recorded on a scheduling tool

The project schedule is recalculated each week highlighting projected variances versus plan and total float

Activity completion S-Curves (actual versus plan) are used and updated on a weekly basis

Budget S-curves (actual versus plan) are updated on at least a monthly basis

The Estimate at Complete (EAC) forecast is compared with Budget at Complete (BAC) to identify cost variances

Appropriate reporting metrics using graphical tools are created and maintained for key deliverables such as configurations, data records, testing, reports, forms etc.

Resource gap reports/metrics are produced highlighting resource shortfalls

Project performance metrics are posted openly and publicly to all stakeholders

Forecasts are produced for scope, schedule and budget at regular intervals

The issue log is updated routinely

Project metrics are used effectively to trigger escalation and corrective action

Risk removal and mitigation plans are tracked routinely

Project Manager keeps the customer well informed

Quality metrics are utilized (see Phase Reviews and Quality Management)

Process Tools and Techniques

Project management scheduling and resource management software tools
such as MS Project
Critical path and total float
Excel: Activity completion S-Curve actual versus plan
Excel: Budget S-Curve actual versus plan (EAC versus BAC.
Excel graphical tools such as stop light charts and run down curves for
configurations, data records, testing, reports, forms etc as required
Escalation
Corrective action

Phase Reviews, Quality Management & Quality Gates **600 hrs**

Observation of Process

Phase exit review milestones are integrated into the project plan

Phase exit criteria are identified, measured for sufficiency and openly reported

Phase exit reviews (i.e. quality gate reviews) occur and areas of insufficiency are rigorously identified as open issues

Phases are reported as complete only when sufficiency is actually achieved

Sufficient quality processes are built into the development of project deliverables. These processes include quality steps such as identification and documentation of requirements, unit testing, integration testing, test metrics, configuration management and change control

Key product deliverables produced within each phase are mapped to the original requirements of the project and/or the Statement of Work (SOW) and the business case. Gaps are identified and formally managed as issues throughout the project life cycle

Appropriate testing practices are part of the project life cycle (methodology).

Process Tools and Techniques

Correctly use the following tools and techniques:

Quality Gates

Quality Functional Deployment (QFD)

Quality Process Management

Testing

Issue Management and Corrective Action **1000 hrs**

Observation of Process

An issue log is used to record and review issues
Issues are reviewed regularly at team meetings
Issues are followed up and discharged in a timely manner
Tough issues are not hidden but openly and aggressively confronted
The project manager follows up with team members who own deliverables
that are falling behind plan in a timely manner
The project manager rigorously works with team members who are operating
behind plan to develop and implement recovery strategies
Issues are escalated as required
The project manager keeps the customer and project sponsor well informed

Process Tools and Techniques

Issue log
Issue management
Corrective action
Escalation

Project Leadership and Communications **1200 hrs**

Observation of Process

Provides adequate direction and work instructions to team members
Inspires and motivates team members
Confronts tough issues (as opposed to dodging those issues)
Spends time leading the team
Secure decisions from team members and stakeholders
Demonstrates stability and consistency in his/her direction
Runs team meetings effectively
Delegates and holds team members accountable
Facilitates crisis resolution effectively
Uses project metrics appropriately
Uses good judgment
Maintains the "appropriate" level of stress on the project environment, not too much & not too little
Performs "Integration" management and coordination effectively
Manages project risks effectively
Secures corrective action as required
Ensures appropriate project communications exist

Process Tools and Techniques

Integration management
Crisis management
Decision making
Communication
Corrective action

Multi-Project Management/Skill Center Management **100 hrs**

Observation of Process

Creates a prioritized list of existing projects
Updates monthly/quarterly high level multi-project schedule update report
Creates and documents a process for handling new project requests
Creates a Resource Breakdown Structure (RBS)
Inputs projects into scheduling tool by phase
Loads resources into project scheduling tool (High Level only
Resolves multi-project resource issues
Produces resource assignment/loading and exception reports
Utilizes multi-project change control effectively
Receives project status reports from project managers and updates multi-
project scheduling model
Organizes formal meetings for resource/project reprioritization

Process Tools and Techniques

Project management software tools
Change control
Process Mapping
Resource gap report

RELATED INSTRUCTION SCHEDULE FOR: IT Project Manager:

Section I - THE PROJECT MANAGEMENT FRAMEWORK **Chapter 1 - Introduction**	%	**Planned Classr**
1.2 What is a Project? *1.2.1 Temporary* *1.2.2 Unique Product, Service or Result* *1.2.3 Progressive Elaboration*	0.35%	0.50
1.3 What is Project Management? *1.3.1 The Project Management Framework* *1.3.2 The Project Management Knowledge Areas*	0.69%	1.00
1.4 Intro Project Management Tools	0.09%	0.13
Lab exercises with Project scheduling, resource and cost tools	13.86%	20.00
Chapter 2 - The Project Management Context		
2.1 Project Phases and the Project Life Cycle	0.69%	1.00
2.1.1 Characteristics of Project Phases	0.35%	0.50
2.1.2 Characteristics of the Project Life Cycle	0.35%	0.50
2.1.3 Representative Project Life Cycles	0.69%	1.00
2.2 Project Stakeholders	0.35%	0.50
2.3 Organizational Influences *2.3.1 Organizational Systems* *2.3.2 Organizational Cultures and Styles* *2.3.3 Organizational Structure* *2.3.4 Project Office*	0.69%	1.00
2.4 Key General Management Skills *2.4.1 Leading* *2.4.2 Communicating* *2.4.3 Negotiating* *2.4.4 Problem Solving* *2.4.5 Influencing the Organization*	0.09%	0.13
2.5 Social-Economic-Environmental Influences *2.5.1 Standards and Regulations*	0.09%	0.13

2.5.2 Internationalization		
2.5.3 Cultural Influences		
2.5.4 Social-Economic-Environmental Sustainability		
Chapter 3 - Project Management Processes		
3.1 Project Processes	0.09%	0.13
3.2 Process Groups	0.09%	0.13
3.3 Process Interactions	0.09%	0.13
3.3.1 Initiating Processes		
3.3.2 Planning Processes		
3.3.3 Executing Processes		
3.3.4 Controlling Processes		
3.3.5 Closing Processes		
3.4 Customizing Process Interactions		
3.5 Mapping of Project Management Processes	0.35%	0.50
Section II - THE PROJECT MANAGEMENT KNOWLEDGE AREAS		
Chapter 4 - Project Integration Management		
4.1 Project Plan Development	6.93%	10.00
4.1.1 Inputs to Project Plan Development		
4.1.2 Tools and Techniques for Project Plan Development		
4.1.3 Outputs from Project Plan Development		
4.2 Project Plan Execution	1.39%	2.00
4.2.1 Inputs to Project Plan Execution		
4.2.2 Tools and Techniques for Project Plan Execution		
4.2.3 Outputs from Project Plan Execution		
4.3 Integrated Change Control	6.93%	10.00
4.3.1 Inputs to Integrated Change Control		
4.3.2 Tools and Techniques for Integrated Change Control		
4.3.3 Outputs from Integrated Change Control		
Chapter 5 - Project Scope Management		
***5.1** Initiation*	0.35%	0.50
5.1.1 Inputs to Initiation		
5.1.2 Tools and Techniques for Initiation		
5.1.3 Outputs from Initiation		

5.2 Scope Planning *5.2.1 Inputs to Scope Planning* *5.2.2 Tools and Techniques for Scope Planning* *5.2.3 Outputs from Scope Planning*	1.39%	2.00
5.3 Scope Definition *5.3.1 Inputs to Scope Definition* *5.3.2 Tools and Techniques for Scope Definition* *5.3.3 Outputs from Scope Definition*	1.39%	2.00
5.4 Scope Verification *5.4.1 Inputs to Scope Verification* *5.4.2 Tools and Techniques for Scope Definition* *5.4.3 Outputs from Scope Definition*	1.39%	2.00
5.5 Scope Change Control *5.5.1 Inputs to Scope Change Control* *5.5.2 Tools and Techniques for Scope Change Control* *5.5.3 Outputs from Scope Change Control*	1.39%	2.00
Chapter 6 - Project Time Management **6.1** Activity Definition *6.1.1 Inputs to Activity Definition* *6.1.2 Tools and Techniques for Activity Definition* *6.1.3 Outputs from Activity Definition*	1.39%	2.00
6.2 Activity Sequencing *6.2.1 Inputs to Activity Sequencing* *6.2.2 Tools and Techniques for Activity Sequencing* *6.2.3 Outputs from Activity Sequencing*	1.39%	2.00
6.3 Activity Duration Estimating *6.2.1 Inputs to Activity Duration Estimating* *6.2.2 Tools and Techniques for Activity Duration Estimating* *6.2.3 Outputs from Activity Duration Estimating*	1.39%	2.00
6.4 Schedule Development *6.4.1 Inputs to Schedule Development* *6.4.2 Tools and Techniques for Schedule Development* *6.4.3 Outputs from Schedule Development*	3.47%	5.00
6.5 Schedule Control *6.5.1 Inputs to Schedule Control*	8.32%	12.00

6.5.2 Tools and Techniques for Schedule Control		
6.5.3 Outputs from Schedule Control		
Chapter 7 - Project Cost Management		
7.1 Resource Planning	1.39%	2.00
7.1.1 Inputs to Resource Planning		
7.1.2 Tools and Techniques for Resource Planning		
7.1.3 Outputs from Resource Planning		
7.2 Cost Estimating	0.35%	0.50
7.2.1 Inputs to Cost Estimating		
7.2.2 Tools and Techniques for Cost Estimating		
7.3.3 Outputs from Cost Estimating		
7.3 Cost Budgeting	1.39%	2.00
7.3.1 Inputs to Cost Budgeting		
7.3.2 Tools and Techniques for Cost Budgeting		
7.3.3 Outputs from Cost Budgeting		
7.4 Cost Control	1.39%	2.00
7.4.1 Inputs to Cost Control		
7.4.2 Tools and Techniques for Cost Budgeting		
7.4.3 Outputs from Cost Control		
Chapter 8 - Project Quality Management		
8.1 Quality Planning	4.16%	6.00
8.1.1 Inputs to Quality Planning		
8.1.2 Tools and Techniques for Cost Budgeting		
8.1.3 Outputs from Quality Planning		
8.2 Quality Assurance	2.77%	4.00
8.2.1 Inputs to Quality Assurance		
8.2.2 Tools and Techniques for Quality Assurance		
8.2.3 Outputs from Quality Planning		
8.3 Quality Control	2.77%	4.00
8.3.1 Inputs to Quality Control		
8.3.2 Tools and Techniques for Quality Control		
8.3.3 Outputs from Quality Control		
Chapter 9 - Project Human Resource Management		
9.1 Organizational Planning	1.39%	2.00
9.1.1 Inputs to Organization Planning		
9.1.2 Tools and Techniques for Organization Planning		
9.1.3 Outputs from Organization Planning		

9.2 Staff Acquisition *9.2.1 Inputs to Staff Acquisition* *9.2.2 Tools and Techniques for Staff Acquisition* *9.2.3 Outputs from Staff Acquisition*	1.39%	2.00
9.3 Team Development *9.3.1 Inputs to Team Development* *9.3.2 Tools and Techniques for Team Development* *9.3.3 Outputs from Team Development*	6.93%	10.00
Chapter 10 - Project Communications Management **10.1** Communications Planning *10.1.1 Inputs to Communications Planning* *10.1.2 Tools and Techniques for Communications Planning* *10.1.3 Outputs from Communications Planning*	0.69%	1.00
10.2 Information Distribution *10.2.1 Inputs to Information Distribution* *10.2.2 Tools and Techniques for Information Distribution* *10.2.3 Outputs from Information Distribution*	1.73%	2.50
10.3 Performance Reporting *10.3.1 Inputs to Performance Reporting* *10.3.2 Tools and Techniques for Performance Reporting* *10.3.3 Outputs from Information Distribution*	3.47%	5.00
10.4 Administrative Closure *10.4.1 Inputs to Administrative Closure* *10.4.2 Tools and Techniques for Administrative Closure* *10.4.3 Outputs from Administrative Closure*	0.35%	0.50
Chapter 11 - Project Risk Management **11.1** Risk Management Planning *11.1.1 Inputs to Risk Management Planning* *11.1.2 Tools and Techniques for Risk Management Planning* *11.1.3 Outputs from Risk Management Planning*	0.69%	1.00
11.2 Risk Identification *11.2.1 Inputs to Risk Identification* *11.2.2 Tools and Techniques for Risk Identification* *11.2.3 Outputs from Risk Management Planning*	2.77%	4.00
11.3 Qualitative Risk Analysis	1.39%	2.00

11.3.1 Inputs to Qualitative Risk Analysis *11.3.2 Tools and Techniques for Qualitative Risk Analysis* *11.3.3 Outputs from Qualitative Risk Analysis*		
11.4 Quantitative Risk Analysis *11.4.1 Inputs to Qualitative Risk Analysis* *11.4.2 Tools and Techniques for Quantitative Risk Analysis* *11.4.3 Outputs from Quantitative Risk Analysis*	1.39%	2.00
11.5 Risk Response Planning *11.5.1 Inputs to Risk Response Planning* *11.5.2 Tools and Techniques for Risk Response Planning* *11.5.3 Outputs from Risk Response Planning*	4.16%	6.00
11.6 Risk Monitoring and Control *11.6.1 Inputs to Risk Monitoring and Control* *11.6.2 Tools and Techniques for Risk Monitoring and Control* *11.6.3 Outputs from Risk Monitoring and Control*	0.69%	1.00
Chapter 12 - Project Procurement Management		
12.1 Procurement Planning *12.1.1 Inputs to Procurement Planning* *12.1.2 Tools and Techniques for Procurement Planning* *12.1.3 Outputs from Procurement Planning*	0.35%	0.50
12.2 Solicitation Planning *12.2.1 Inputs to Procurement Planning* *12.2.2 Tools and Techniques for Procurement Planning* *12.2.3 Outputs from Solicitation Planning*	0.35%	0.50
12.3 Solicitation *12.3.1 Inputs to Solicitation* *12.3.2 Tools and Techniques for Solicitation* *12.3.3 Outputs from Solicitation*	0.35%	0.50
12.4 Source Selection *12.4.1 Inputs to Source Selection* *12.4.2 Tools and Techniques for Source Selection* *12.4.3 Outputs from Source Selection*	0.35%	0.50
12.5 Contract Administration *12.5.1 Inputs to Contract Administration*	1.04%	1.50

12.5.2 Tools and Techniques for Contract Administration *12.5.3 Outputs from Contract Administration*		
12.6 Contract Closeout *12.6.1 Inputs to Contract Closeout* *12.6.2 Tools and Techniques for Contract Closeout* *12.6.3 Outputs from Contract Closeout*	0.35%	0.50
Total Hours	100.00%	144.28

2nd Year

RELATED INSTRUCTION SCHEDULE FOR: IT Project Manager:

Personal competencies – 82 Hours

In addition to having knowledge of project management tools and techniques, IT Project Managers need to possess general business skills. The following is a list of some of the courses and training topics covering the general personal business skills that every IT Project Manager should have.

This training can be delivered by a variety of IT training and management training provider organizations including training companies, community colleges, universities or in-house within a company.

Contracting and Procurement

E Business
Business Process Modeling

Contract Management

Technical Career Compass Elective areas--- **200 hours**

In addition to project management training and personal business competencies, the Computing Technology Industry Association (CompTIA) has worked with members of the IT industry to identify IT technical training and overall educational achievements that enhance a project manager's effectiveness in an IT environment. The following is a list of some of the courses and training topics covering this area**.** This training can be delivered by a variety of IT training and management training provider organizations including training companies, community colleges, universities or in-house within a companies.

Conflict Resolution
Risk Management

General Business Skills
Developing leadership skills
IT technology skill (software and/or hardware)
IT development methodologies, tools and managerial methods